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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/549,359	09/14/2005	Tomoyuki Hosokawa	01165.0945-00000	5444
7590 07/09/2009 Finnegan Henderson Farabow Garrett & Dunner 901 New York Avenue NW Washington, DC 20001-4413				
EXAMINER				
MATZEK, MATTHEW D				
ART UNIT		PAPER NUMBER		
1794				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/549,359

**Applicant(s)**

HOSOKAWA ET AL.

**Examiner**

MATTHEW D. MATZEK

**Art Unit**

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 2, 5, 6, 10 and 14-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 5, 6, 10 and 14-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

***Response to Amendment***

1. The amendment dated 2/25/2009 has been fully considered and entered into the Record. Claim 1 has been amended to narrow the melt flow rate of the polyolefin resin and to preclude the use sheath-core fibers for the conjugate fibers. The previous prior art rejections are hereby withdrawn as they relied upon the use of sheath-core conjugate fibers. The amendment of claim 1 contains no new matter. Claims 12 and 13 have been canceled. Claims 1, 2, 5, 6, 10 and 14-17 remain pending.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1, 2, 5, 6, 10 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perkins et al. (US 5,178,931) in view of Bansal et al. (US 6,548,431) and evidenced by Matsui et al. (US 6,174,602).

a. Perkins et al. teach the creation of a nonwoven laminate comprising three layers, the first and third layers comprising filaments of diameter in excess of 7 microns and the second layer consists of filaments with average diameters of between 0.1 to 10 microns. The layers of the laminate are pattern bonded by the application of thermocompressive bonding (abstract). The first and third layers, which correspond to claimed filamentary fiber nonwoven fabric layers, may be made of polyester (col. 2, lines 56-63). The second

layer of Perkins et al., which corresponds to the claimed extremely fine fiber layer, may be made of fibers comprising a mixture of polyethylene or polypropylene and polyester (col. 5, lines 47-60). Perkins et al. fail to teach the quantity of each polymer to be used in the second layer.

b. Bansal et al. teach a process for making a nonwoven sheet of melt spun fibers comprising at least 30 weight percent polyester having a viscosity less than 0.62 dl/g (abstract). The preferred viscosity of the polyester ranges from 0.40 to 0.60 dl/g (col. 2, lines 37-48). The polyester may be blended with polyethylene (col. 3, lines 12-20). Table 1 demonstrates that the invention of Bansal et al. have water pressure resistances (hydrostatic head) ranging from 3.73-4.12 kPa (conversion done by Examiner). The fibers of the nonwoven sheet are preferably at least 75 weight percent polyester (col. 11, lines 3-5) and at least one other separate polymer component. The polyester and the "at least one other separate polymer component" polyethylene may be arranged in an "islands in the sea" orientation with the element in greater concentration (polyester) being the "sea" and the polyethylene being the "island" component. This results in less than 25 weight percent polyethylene in the fibers of the nonwoven sheet. This is the same manufacturing process utilized by Applicant, which would also lead to the claimed discontinuous phase of the polyolefin resin scattered in the surface of the extremely fine fibers forming the extremely fine fibers nonwoven fabric. The meltspun fibers of Bansal et al. are on the same diameter scale as those of Perkins et al. (col. 4, lines 3-9). The basis weights of Bansal et al. meet the those of the instant claims (Table 1). Adding the

Grab Tensile strengths in the Machine and Cross Directions provided in Table 1 and dividing this value yields tensile tenacities that exceed those claimed.

c. The claim limitations recite a discontinuous phase of polyolefin resin scattered in a surface of the extremely fine fibers of the nonwoven fabric not in sheath-core structure. The method of producing extremely fine fibers set forth in Bansal et al. provides for the formation of polyethylene (island portion) mixed with polyester (sea portion) followed by the application of a drawing tension to the fibers that decreases the fiber's diameter and would necessarily cause the elongation of all components within the fiber in the longitudinal direction (col. 2, lines 13-36). Bansal et al. also disclose that any known configuration may be used for the multi-component fibers and that if a fiber contains multiple components that the component with the lower melting temperature should be located on the fiber's surface. The example provided by Bansal et al. has exterior polyethylene with an interior of polyester. The combination of the configuration and composition teachings set forth in Bansal would result in the claimed fiber surface structure because the polyethylene component would be present on the fibers surface as the lower melting temperature component and would be in the form of a discontinuous phase in the longitudinal direction due to the "island-in-sea" configuration and the fiber's post-formation drawing.

d. Further support for Examiner's assertion that the "sea" components of polyolefin resin is scattered in the surface of the extremely fine fibers can be found in the figures of Matsui et al. (US 6,174,602). Particular direction should be paid to Figure 3K, which

illustrates that the islands-in-the-sea configuration may have “islands” on the periphery of the fiber, thereby meeting the structural limitations of the amended claim.

e. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have increased the hydrostatic head (water pressure resistance) of the combined invention to at least 5.2 kPa, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. This is especially true in arts where the variable is one routinely optimized and its factors for variance are understood. Hydrostatic head is such a variable as evidenced by the various disclosures of record.

f. Since Perkins et al. and Bansal et al. are from the same field of endeavor (i.e. nonwoven fibrous structures), the purpose disclosed by Bansal et al. would have been recognized in the pertinent art of Perkins et al.

g. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the middle layer of Perkins et al. with the invention of Bansal et al. with the motivation of using a nonwoven sheet exhibiting high strength comprised of low denier fibers melt spun of low viscosity polyester (col. 8, line 66-col. 9, line 5) as disclosed by Bansal et al.

h. The melt flow rates of the polymers used in Perkins et al. and Bansal et al. are not disclosed. However, the viscosities of the polymers of Bansal et al. are taught and anticipate those currently claimed. Melt flow rates and inherent viscosities are closely correlated. Therefore, it would be reasonable to presume that the melt flow rates (MFRs)

of Bansal et al. either anticipate those currently claimed or it would have been obvious to optimize the MFRs of Bansal et al. to arrive at those instantly claimed motivated by the desire to use a more easily processed polymer.

i. The solution viscosities as claimed have been treated as process limitations that do not materially impact the final product as the compositional and structural limitations of the instant claims have been met. The presence of process limitations on product claims, in which the product does not otherwise patentably distinguish over prior art, cannot impart patentability to the product. *In re Stephens*, 145 USPQ 656. Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to Applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289, 292.

j. Claim 15 is rejected as the extremely fine fiber nonwoven fabric layer would show the claimed starting level of wetting and impregnating as composition and structure of the claimed invention has been met. Claim 16 is rejected as the extremely fine fibers may be melt blown (col. 4, lines 62-69; Perkins et al.). Claim 17 is rejected as Perkins et al. meet the process limitations for forming the three layer laminate (col. 2 and 3).

***Response to Arguments***

3. Applicant's arguments with respect to claims 1, 2, 5, 6, 10 and 14-17 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW D. MATZEK whose telephone number is (571)272-2423. The examiner can normally be reached on M-F, 9-5:30.



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on 571.272.1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew D Matzek/  
Examiner, Art Unit 1794

/D. Lawrence Tarazano/  
Supervisory Patent Examiner, Art Unit  
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